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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,360	01/08/2004	Alice Madrone Dalrymple	212/543	7626

7590 04/11/2006  
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EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 04/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

27

<b>Office Action Summary</b>	<b>Application No.</b> 10/754,360	<b>Applicant(s)</b> DALRYMPLE ET AL.	
	<b>Examiner</b> Sylvia R. MacArthur	<b>Art Unit</b> 1763	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 7-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant has *incompletely* provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as the present invention at the time this invention was made, or was subject to a joint research agreement at the time this invention was made. The rejection will be maintained as the terms “at the time this invention was made” were not explicitly stated.

### *Double Patenting*

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-3 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of Barbour (U.S. Patent No. 6,888,150) in view of Swedek et al (6,190,234).

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Barbour claims a device for polishing wafer comprising a polishing pad wherein a sensor, optical assembly, and optical puck are disposed in the polishing pad, see claims 5 and 15 of Barbour.

Barbour fails to teach the optical assembly comprises a light source and a detector.

Barbour further fails to teach a processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Barbour with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Barbour to include a processor with endpoint determination and process control capabilities.

4. Claims 4 and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of Barbour (U.S. Patent No. 6,888,150) in view of Johansson et al (US 2005/0101224).

The teachings of Barbour were discussed above.

Barbour fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Barbour with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Barbour and Johansson et al.

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5. Claims 1-3 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of Barbour (U.S. Patent No. 6,726,528) in view of Swedek et al (6,190,234).

Barbour claims a device for polishing wafer comprising a polishing pad wherein a sensor, optical assembly, and optical puck are disposed in the polishing pad, see claims 5 and 15 of Barbour.

Barbour claims an optical assembly in broad terms and fails to claim a light source and a detector. Barbour further fails to teach a processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Barbour with the optical assembly and processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Barbour to include the optical assembly and a processor with endpoint determination and process control capabilities.

6. Claims 4 and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of Barbour (U.S. Patent No. 6,726,528) in view of Johansson et al (US 2005/0101224).

The teachings of Barbour were discussed above.

Barbour fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

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Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Barbour with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Barbour and Johansson et al.

7. Claims 1-3 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of Wolf (U.S. Patent No. 6,485,354) in view of Swedek et al (6,190,234).

Wolfs claims a device for polishing wafer comprising a polishing pad wherein a sensor, light source and, means for conveying power to the light source and the detector are disposed in the polishing pad

Wolf fails to claim processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Wolf with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Wolf to include a processor with endpoint determination and process control capabilities.

8. Claims 4 and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of Wolf (U.S. Patent No. 6,485,354) in view of Johansson et al (US 2005/0101224).

The teachings of Wolf were discussed above.  
Wolf fails to teach a processor.

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Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Wolf with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Wolf and Johansson et al.

9. Claims 1-3 and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of Wolf copending Application No. 10/303,621 in view of Swedek et al (6,190,234).

This is a provisional obviousness-type double patenting rejection.

Wolfs claims a device for polishing wafer comprising a polishing pad wherein a sensor, light source and, means for conveying power to the light source and the detector are disposed in the polishing pad

Wolf further fails to claim a processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Wolf with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Wolf to include a processor with endpoint determination and process control capabilities.

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10. Claims 4 and 5 re provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of Wolf copending Application No. 10/303,621 in view of Johansson et al (US 2005/0101224).

This is a provisional obviousness-type double patenting rejection.

The teachings of Wolf were discussed above.

Wolf fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Wolf with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Wolf and Johansson et al.

11. Claims 1-3 and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of Halley et al copending Application No. 09/970,252 in view of Swedek et al (6,190,234).

This is a provisional obviousness-type double patenting rejection.

Halley et al claims a device for polishing wafer comprising a polishing pad wherein a sensor, light source and, means for conveying power to the light source and the detector are disposed in the polishing pad

Halley et al fails to claim a processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.



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The motivation to provide the apparatus of Halley et al with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Halley et al to include a processor with endpoint determination and process control capabilities.

12. Claims 4 and 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of Halley et al copending Application No. 09/970,252 in view of Johansson et al (US 2005/0101224).

This is a provisional obviousness-type double patenting rejection.

The teachings of Halley et al were discussed above.

Halley et al fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Halley et al with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Halley et al and Johansson et al.

13. Claims 1-3 and 6 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of Halley et al US 6,986,701 in view of Swedek et al (6,190,234).

Halley et al claims a device for polishing wafer comprising a polishing pad wherein a sensor, light source and, means for conveying power to the light source and the detector are disposed in the polishing pad

Halley et al fails to claim a processor programmed to measure a sinusoidal curve.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the

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sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Halley et al with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Halley et al to include a processor with endpoint determination and process control capabilities.

14. Claims 4 and 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of Halley et al US 6,986,701 in view of Johansson et al (US 2005/0101224).

The teachings of Halley et al were discussed above.

Halley et al fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Halley et al with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Halley et al and Johansson et al.

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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16. Claims 1,2, 3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbour (US 6,884,150) in view of Swedek et al (6,190,234).

Barbour teaches an endpoint detection apparatus featuring a polishing pad 3 with built-in optical sensor 45. The sensor 25 comprises a light source 35, a light detector 36, and an optical puck 46, a conductor ribbon 11 (means for conveying power).

Wolf fails to teach a processor as discussed in claim 1 of the present invention.

Swedek teaches an endpoint detection apparatus wherein the light source, detectors and sensor are connected to a processor, see col. 7 lines 1-15. The processor is programmed to measure the sinusoidal curve indicative of the intensity of detected light over time and wherein the processor is further programmed to measure the wavelength of the sinusoidal curve see col. 7 lines 1-15 and col.8 lines 38-45.

The motivation to provide the apparatus of Barbour with the processor of Swedek is that it provides an in-situ means of endpoint determination coupled with process control.

Thus, it would have been obvious for one of ordinary skill in the art to modify the teachings of Barbour to include a processor with endpoint determination and process control capabilities.

Claims 3 and 6: See Fig.2 of Barbour

17. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbour in view of Johansson et al (US 2005/0101224).

The teachings of Barbour were discussed above.

Barbour fails to teach a processor.

Johansson et al teaches a CMP apparatus provided with a computer 90 that is programmed to correlate eddy current monitoring with film thickness measurements. See section [0042].

Regarding claim 5: The processing modifying the rate of polishing see section [0056] of Johansson et al.

The motivation to provide the apparatus of Barbour with the processor and algorithms of Johansson et al is that it provides in-situ monitoring and process controller of the polisher.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Barbour and Johansson et al.

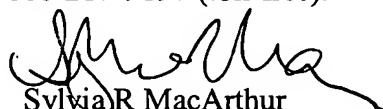
### ***Conclusion***

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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

April 7, 2006